The Status in Britain of *Stigmella speciosa* (Frey) and *S. aceris* (Frey) (Lep., Nepticulidae)

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The account given by Lord Walsingham (1916) of his discovery of *Stigmella speciosa* (Frey) in Britain makes entertaining reading. On the 22nd August, 1914, when a guest at Emery Down, near Lymington, Hants., he was sitting in the garden under a sycamore when he noticed a nepticulid larva "descending from the tree", presumably by means of a silk thread. He secured it and then found two others. He knew the larvae could not be those of *Stigmella* (now *Etainia*) *sericopeza* Zeller, as the tree was a young one and lacked keys; so he started to search for mines in the leaves. Having failed at ground level, he had another look from the upstairs windows, since the tree was growing close to the house. Again he drew a blank. Many entomologists would have abandoned the quest at this point, but not Lord Walsingham. He instructed the gardener to collect the leaves when they fell in the autumn and send them to him in London. His perseverance did not meet with the success it deserved, for he failed to find a single mine in the consignment.

He placed his larvae in a bottle where they duly spun cocoons. For a time he watched them eagerly hoping for the emergence of an adult. Since none appeared, in the course of time his interest waned and the bottle was forgotten. It was not until 1916 that he took it up again, and found to his chagrin that it contained a dead imago. He did not attempt to relax it but gummed it to a card and placed it in the collection at the British Museum (Natural History). He duly wrote a paper describing it as *Stigmella speciosa* (Frey), an addition to the British list.

No further larvae were found and Meyrick (1928) was unable to quote any locality for *S. speciosa* other than Lymington, Hants. The next mention of the species in our literature was when Wakely (1962) recorded that he, in company with L. T. Ford and our editor, had found nepticulid mines of two patterns in sycamore leaves at Mickelham, Surrey. These were sent, via Mr. S. C. S. Brown, to A. G. Carolsfeld-Krausé in Denmark, who pronounced that they belonged to two species, *S. speciosa* and *S. pseudoplatanella* (Skala), the latter being new to Britain. Wakely stated that he had known that we had a nepticulid mining sycamore since August 1957, when he had found a tenanted mine at Ockham Common which produced a parasite. Since Wakely's records, mines of *S. speciosa* have been observed elsewhere in south east England, principally in the counties of Kent, Surrey and Hampshire, but few imagines have been reared. We know that *S. pseudoplatanella* is a mine-form of *S. speciosa* and not a distinct species.

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Let us leave *S. speciosa* for the moment and consider another *Acer*-feeding nepticulid, *Stigmella aceris* (Frey). This species was placed on the British list by Jacobs (1962) on the evidence of five vacated mines on field maple (*Acer campestre*) which he had found near Malling, Kent, on the 20th August, 1949. There was no other record until the 20th October, 1971, when I found three vacated mines at Lullingstone, Kent (Emmet, 1971). During the next few years I made several visits to the same locality and searched thoroughly, but always without success.

While I was researching into the Nepticulidae for my contribution to *The Moths and Butterflies of Great Britain and Ireland* (Heath *et al.*, 1976), I read Lord Walsingham's paper on *S. speciosa,* and was immediately convinced that the species he had then discovered was in fact *S. aceris.* My opinion was based on two facts. First, Lord Walsingham described his larvae as "bright green". That is the colour of the larva of *S. aceris,* whereas that of *S. speciosa* is yellow. Lord Walsingham writes: "I have a note that the larvae were bright green—Heinemann describes the larva of *speciosa* as greenish amber-yellow." My second reason was that Walsingham stated that the head of the imago was black, adding that it had also been described as rust-red. To the best of my knowledge, the head of *S. speciosa* is always red whereas that of *S. aceris* is always black. A third factor suggesting that the Lymington specimen was *S. aceris* was Walsingham's failure to find any mines. We know that they must have been there, but the mines of *S. aceris* are particularly hard to detect, the gallery being completely filled with greenish frass concolorous with the leaf.

I had a look at the specimen in the British Museum, but my examination was inconclusive. The abdomen was concealed by the wings and it was impossible to tell the moth's sex; apart from the black head, it looked very much like *S. speciosa.* Consequently, in my accounts of the two species (Heath *et al.*, 1976: 225 and 254), I voiced my suspicions but left the matter unresolved.

The next event in this story was the finding by Mr. S. Whitebread of a leaf of Norway maple (*Acer platanoides*) near Edenbridge, Kent, which bore three mines of *S. aceris*; two were vacated and the third contained a dead larva. He made his discovery in October 1975, and kindly gave me full particulars of the locality. I reconnoitred the site in May 1976, but did not have the opportunity to search for mines until the 3rd September. To my amazement, they were present in profusion, often several to a leaf, the record being seven. Some were on the mature trees, others on saplings growing in a hedgerow nearby, and others again on a field maple which was as heavily infested as the Norway maples. There was also a young sycamore in the area, but I could not find any mines on its leaves, although *S. aceris* has been recorded on sycamore on the Continent. We were much too late, and out of literally hundreds of mines examined only two contained

larvae. One of these was visibly parasitized; the other looked healthy but later spun rather a flimsy cocoon, and I am almost certain that I can see parasite rather than a pupa within.

However, now that I had seen the bright green larva, so different from that of *S. speciosa,* I was more convinced than ever that Lord Walsingham's moth was *S. aceris.* I discussed my views with Dr. J. D. Bradley of the British Museum (Natural History) and he agreed to dissect the specimen. By good fortune, it turned out to be a male. Beirne (1945) depicts neither species, but reference to Petersen (1930) who depicts both established with complete certainty that it was *S. aceris.*

Let me go back to the time when I was describing these species for MBGBI. I found myself then in a quandary: Should I accept Lord Walsingham's historic specimen as *S. speciosa* and adapt my text accordingly, or should I back my own judgement and base my description on the material in my own collection? As might be expected, I compromised. Where Meyrick had described the head of *S. speciosa* as ferruginous to black, I wrote "ferruginous, less usually black"; but when it came to the larva of which Meyrick had written "greenish yellow or green", following Walsingham, I rebelled and wrote "larva pale yellow", knowing myself to be right. Those who now wish to emend their text of MSGBI should make the following corrections: —

p. 225 col. 1. *Imago* l.2. Delete "or, less usually black"
col. 2. *Distribution,* l.2. Delete "there is a possibility that"
p. 254 col. 1. *Distribution,* ll.3-4. For "It is, however, possible that" read "However"
ll.14-15. Delete "but an examination of it proved inconclusive".

In the key to species (imagines) emend as follows: —

p. 180 col. 1. ll.3-4. Delete *in toto.*

Even then the key will not be wholly accurate, because *S. aceris* was paired with *S. tengstromi* (Nolcken) of which, when I wrote, there was no authentic British specimen; moreover, far-reaching confusion prevailed in the literature. But that is another story.

My account of the distribution of *S. aceris* in Britain is not yet concluded. At the end of October, Dr. M. Harper showed me mines which he had found in leaves of field maple in his garden near Ledbury, Herefordshire. These undoubtedly belonged to *S. aceris.* It has now been recorded from Hampshire, Kent and Herefordshire (vice-counties 11, 16 and 36). It appears to be one of those species which is extremely local but may be abundant, at any rate temporarily, within a restricted area.

At present, Walsingham's unset moth is the only British specimen, but 1977 should produce a bred series for our collections and fuller information about the life-cycle in Britain. All we know is that the larvae are full-fed in August. During my visit to the Kent locality I saw a nepticulid running

over the leaves of a Norway maple. It scuttled away before I could secure it, but, thinking that it might have been an ovipositing female *S. aceris,* I paid another visit in early October to see if there was a later generation of larvae; however, there was no sign of fresh mines on the maples.

I would like to conclude my remarks on *S. aceris* with a tribute to Lord Walsingham's integrity as a scientist. It was natural enough for him to jump to the conclusion that the nepticulid he had bred from a larva on sycamore belonged to the species primarily associated with that foodplant. However, he found awkward discrepancies between his own observations and the account of the species in the literature. He made no attempt to gloss these over or explain them away: on the contrary, he gave them full prominence. Had he not done so, his mistake would never have been detected.

I now return to *S. speciosa.* The first British record now appears to be that made by the late Stanley Wakely on Ockham Common in August 1957. The present distributional pattern of the species and the rapidity with which it is spreading indicate that it is a relatively new arrival in Britain, and that it entered the country via south-east Kent. I have a romantic turn of mind and like to think that when the might of Hitler's armies was poised to strike and nothing stood in their way but British defiance, this little invader succeeded where Hitler failed. Having established a bridgehead near our channel ports, it has advanced across our country on a broad front. By the end of 1975, it had occupied every county south and east of a line from the Wash to Portland Bill. In 1976, two salients have been observed, one in Leicestershire and the other in northern Wiltshire, undoubtedly the start of a pincer movement aimed at the industrial midlands. There seems to be no climatic impediment to its further advance and in the course of time, this attractive species may establish itself throughout Britain.

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